

Claims

1. Holder for radioactive substances, comprising a first container, a second container and shielding means, wherein the first container is provided with first sealing means for liquid and gas tight closing said container, wherein the  
5 second container is provided with second sealing means for liquid and gas tight enclosing the first container within the second container, wherein the second container is at least mainly made of yielding essential unbreakable material, preferably plastic material, wherein the shielding means are  
10 positioned at least partly on the outside of the second container and are essentially impenetrable for radioactive radiation.
2. Holder according to claim 1, wherein the shielding means comprises a third container for enclosing the first and  
15 second container, which third container is made of a material essentially impenetrable for radioactive radiance, preferably lead or such material for gamma-type radiation and/or plastic material for alpha and/or beta-type radiation.
3. Holder according to claim 1 or 2, wherein the second  
20 container is permeable for radioactive radiation, especially gamma-type radiation, wherein the second container is retractable from the shielding means for measurement of the radiation of a radioactive substance contained within the first container positioned in said second container.
- 25 4. Holder according to any one of the preceding claims, wherein the first container is essentially made of glass, the second container essentially of plastic material and the shielding means essentially of metal, preferably lead.
5. Holder according to any one of the preceding claims,  
30 wherein the first and second container both have a septum, the septum of the second container during use being situated at least partly over the septum of the first container, both

septa being pierceable approximately simultaneously by a needle.

6. Holder according to claim 5, wherein the second container has a lid, wherein the septum of the second container is clamped at least between the upper edge of the wall of the second container and the lid.

7. Holder according to claim 5 or 6, wherein the shielding means are provided with a stop, during use being positioned over at least part of the septum of the second container, which stop is retractable for engagement of said septa with a needle or the like.

8. Holder according to any one of claims 2 - 7, wherein the second container is provided with means for engagement with the third container, for preventing rotation of the second container inside and relative to the third container, wherein the lid of the second container is provided with engagement means for removal of said lid from said second container without the necessity of manual engagement of said lid by an operator.

9. Holder according to claim 8, wherein the lid is at least partly provided with a circumferencial edge, having a number of notches or openings for engagement with openings or notches of an set of pliers for opening and closing said lid.

10. Holder according to any one of claims 1 - 9, wherein the first and second container are made of material which can be used in an autoclave or like sterilisation means.

11. Holder according to any one of claims 1 - 10, wherein the shielding means comprises a third container and at least a fourth container, the fourth container forming at least part of storage and/or transporting means for the further containers.

12. Set of a holder according to any one of claims 1 - 11 and an instrument for engagement of the holder, provided with means for engagement of a radioactive substance within the first container without manually engaging said containers.

13.     -Use of a holder according to any one of claims 1 - 11  
or of a set according to claim 11, wherein a radioactive  
substance is enclosed liquid and air tight within the first  
and second container, which are enclosed within the shielding  
means, whereby upon use for assessment of the radiation of  
said substance said shielding means is removed at least  
partly from said first and second container, after which the  
radiation of said substance is measured through said first  
and second container.
14.     Use of a holder according to any one of claims 1 - 11  
or of a set according to claim 11, wherein the first and  
second container are provided with at least partly overlying  
septa, wherein a radioactive substance is enclosed liquid and  
air tight within the first and second container, the first  
container being enclosed air and liquid tight with the  
second, which are enclosed within the shielding means,  
whereby upon use of said substance said shielding means is  
removed at least partly from said first and second container,  
after which at least part of said substance is removed from  
said first container and/or a further substance is introduced  
into said first container through said septa.
15.     Method for shielding a radioactive substance,  
comprising the steps of:
- positioning the substance within a first container,
  - closing the first container liquid and air tight with a  
first lid,
  - positioning said first container within a second container,
  - closing said second container liquid and air tight with a  
second lid,
  - positioning said first and second container in a shielding  
means, preferably a third container, and
  - closing said shielding means around the entire first and  
second container.
16.     Method according to claim 15, wherein a glass  
container is used as a first container, an unbreakable  
container, preferably made of a plastic material is used as a

second container and a metal container, preferably a lead container is used as a shielding means.

17. Method according to claim 15 or 16, wherein a liquid is introduced between the first and second container, after which at least the first and second container are positioned in an autoclave or like sterilisation means and are sterilised, the first container containing said substance.

18. Container for use in a holder according to any one of the claims 1 - 11, a set according to claim 12, in use according to any one of claims 13 or 14 or in a method according to any one of claims 15 - 17.

19. Assembly for dispensing radioactive substances comprising a holder according to claim 11 and a dispensing instrument, said dispensing instrument being provided with a casing in which the third container can be enclosed.

20. Assembly according to claim 19, in which the casing is suspended on a pivot axis, extending during use approximately horizontal, means being provided for retaining the casing in a first, upright position and in a second, upside down position.